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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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JUDITH E. SCHWABE

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04/06/2004

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EXAMINER

HO, THE T

ART UNIT

PAPER NUMBER

2126

DATE MAILED: 04/06/2004

24

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application

09/243,107

Applicant(s)

SCHWABE ET AL.

Examiner

The Thanh Ho

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9,13-15,17-39,43-45,47-65,69-71 and 73-82 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

- 6) ☒ Claim(s) 1-9,13-15,17-39,43-45,47-65,69-71 and 73-82 is/are rejected.

- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 20.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This action is in response to the amendment filed 1/12/2004.
2. Claims 1-9, 13-15, 17-39, 43-45, 47-65, 69-71, 73-82 have been examined and are pending in the application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9, 13-15, 25-27, 29-39, 43-45, 55-65, 69-71 and 81-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yellin U.S Patent No. 5,761,513 in view of Levy U.S Patent No. 6,092,147.

**As to claim 26**, Yellin teaches a computer implemented process for managing exceptions throwable during execution of methods in classes (normal exceptions that are raised explicitly by executing methods, and more serious exceptions that arise from virtual machine failures and runtime errors, such as security exceptions, stack underflow or overflow, illegal arguments in procedure calls, and so on, line 66 column 1 to line 28 column 2) by a virtual machine (Java virtual machine, line 32 column 3; lines 11-57 column 3), each method (each method, line 13 column 3) including protected code (protected code block, line 63 column 3) and an exception handler array defining

exception handlers associated with the method (the code for the exception handlers, line 14-15 column 3), the protected code of methods stored in a first portion (throwable, error and exception, 122) of a package (Java class file, line 20 column 3) according to an ordering, combining in block form (Fig. 1) the exception handler arrays for methods into a single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3); the exception handler arrays positioned in a second portion of the package (ThreadDeath to NoSuchMethodError, Fig. 2), searching the exception handler table (found in a tree search, lines 42-44 column 3) when an exception is thrown (an exception is thrown, line 41 column 3) while executing one of the methods (while executing the protected code block, line 65 column 3) including locating a first matching exception in the single exception handler table (the enclosing exception handlers that is applicable to the thrown exception, lines 42-44 column 3). However, Yellin does not explicitly disclose a resource-constrained device.

Levy teaches implementing a virtual machine on a resource-constrained device (Fig. 1). It would have been obvious to apply the teachings of Levy to the system of Yellin because this provides a reduction in the overall memory size and an increase in the overall processing speed of the virtual machine as disclosed by Levy (lines 33-55 column 2).

**As to claim 1**, it is a computer process claim of claim 26. Therefore, it is rejected for the same reasons as claim 26 above.

**As to claim 2**, Yellin as modified further teaches combining all exception handler arrays for all methods in a class in the single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3).

**As to claim 3**, Yellin as modified further teaches combining all exception handler arrays for all methods in all classes in the single exception handler table (lines 19-40 column 3).

**As to claim 4**, Yellin as modified further teaches combining all exception handler arrays for all methods in a Java package (the methods in a Java class file, line 20 column 3 and Fig. 4) in the single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3).

**As to claim 5**, Yellin as modified further teaches a method is included in a class file (the methods in a Java class file, line 20 column 3 and Fig. 4); combining the exception handler arrays for all methods in a class file in the single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3).

**As to claim 6**, it is a computer process claim of claim 26. Therefore, it is rejected for the same reasons as claim 26 above.

**As to claim 7**, Yellin as modified further teaches retrieving in order exception handler entries (first exception handler found, line 42 column 3) from the exception handler table and checking the type and range of each exception handler (class rank is determined by position, lines 49-50 column 3) for the first matching exception handler.

**As to claim 8**, Yellin as modified further teaches stopping searching if a current exception handler does not match and is the last handler for the top most level of protected code in an associated method (lines 19-47 column 7).

**As to claim 9**, Yellin as modified further teaches the class files are Java class files (Java class file, line 20 column 3).

**As to claim 13**, it is a computer process claim of claim 26. Therefore, it is rejected for the same reasons as claim 26 above.

**As to claim 14**, Levy further teaches the resource constrained device is a smart card (smart card, line 7 column 3).

**As to claim 15**, it is a computer process claim of claim 26. Therefore, it is rejected for the same reasons as claim 26 above.

**As to claim 25**, it is a method claim of claim 26. Therefore, it is rejected for the same reasons as claim 26 above.

**As to claim 27**, it is a system claim of claim 26. Therefore, it is rejected for the same reasons as claim 26 above.

**As to claim 29**, it is a system claim of claim 26. Therefore, it is rejected for the same reasons as claim 26 above.

**As to claim 30**, it is a system claim of claims 5-6 and 26. Therefore, it is rejected for the same reasons as claims 5-6 and 26 above.

**As to claims 31-39, 43-45 and 55-56**, they are product claims of claims 1-9, 13-16 and 25-26, respectively. Therefore, they are rejected for the same reasons as claims 1-9, 13-16 and 25-26 above.

**As to claim 57**, it is an apparatus claim of claim 27. Therefore, it is rejected for the same reasons as claim 27 above.

**As to claims 58-65, 69-71 and 81-82**, they are apparatus claims of claims 2-9, 13-15 and 25-26, respectively. Therefore, they are rejected for the same reasons as claims 2-9, 13-15 and 25-26 above.

4. Claims 17-24, 28, 47-54, and 73-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yellin in view of Levy, and further in view of Bak U.S Patent No. 6,009,517.

**As to claim 17**, it is a method claim of claim 26. Therefore, it is rejected for the same reasons as claim 27 above. However, Yellin as modified does not disclose a return pointer. Bak discloses a stack with frames wherein each frame includes a return pointer (line 52 column 2 to line 41 column 3). It would have been obvious to apply the teachings of Bak to the system of Yellin as modified because this allows exceptions propagate through the execution stack for handling by the appropriate exception handler, even when the functions were written in different languages and the format of the exceptions are different as disclosed by Bak (lines 52 column 2 to line 7 column 3).

**As to claim 18**, Bak further discloses the pointer is a direct pointer to the exception handler information (lines 55-66 column 2).

**As to claims 19 -20**, they are method claims of claims 9 and 26, respectively. Therefore, they are rejected for the same reasons as claims 9 and 26 above.

**As to claim 21**, it is a method claim of claims 2 and 26. Therefore, it is rejected for the same reasons as claims 2 and 26 above.

**As to claim 22**, it is a method claim of claim 14. Therefore, it is rejected for the same reasons as claim 14 above.

**As to claim 23**, Yellin as modified further discloses registering the package in a registry service at installation (line 11 column 3 to line 9 column 4), the registry service maintaining a pointer indicating a location of the combined exception handler table (lines 41-57 column 3), and a range defining a range of addresses at which methods are located (lines 9-18 column 3).

**As to claim 24**, Yellin as modified further discloses locating a package associated with a currently executing method including comparing an address at which an exception was thrown against the range for each package registered in the registry service (line 58 column 3 to line 9 column 4), searching the combined exception handler table associated with a located package (lines 41-57 column 3).

**As to claim 28**, it is a system claim of claim 17. Therefore, it is rejected for the same reasons as claim 17 above.

**As to claims 47-54**, they are product claims of claims 17-24, respectively. Therefore, they are rejected for the same reasons as claims 17-24 above.

**As to claims 73-80**, they are apparatus claims of claims 17-24, respectively. Therefore, they are rejected for the same reasons as claims 17-24 above.

### ***Response to Arguments***



5. Applicant's arguments filed have been fully considered but they are not persuasive.

Applicant argued that Yellin does not teach storing the codes and exception handlers in respective portions (Remarks, pages 27 and 28). In response, Yellin clearly showed in Fig. 1 the order of arrangement in which: the protected code block is stored in the first portion (102) and the exception handler is stored in the second portion (100). Most importantly, Yellin further teaches the invention can have one table of all exception handlers for all the methods in a class (lines 16-18 column 3). The reference meets the limitation as claimed.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to The Thanh Ho whose telephone number is 703-306-5540. A voice mail service is also available for this number. The examiner can normally be reached on Monday – Friday, 8:30 am – 5:00 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

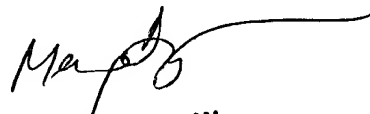
Any response to this action should be mailed to:

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Or fax to:

- AFTER-FINAL faxes must be signed and sent to (703) 746 – 7238
- OFFICAL faxes must be signed and sent to (703) 746 – 7239
- NON OFFICAL faxes should not be signed, please send to (703) 746 – 7240

TTH  
March 31, 2004

  
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